Corbion
Keep creating

# Measuring what matters

## Corbion SDG impact assessment


*At Corbion we preserve what matters*

**Living on one planet, we are fast running out of time. Whilst populations are growing, the resources left to serve them are diminishing. For the sake of current and future generations, we need to shift gears. To stop taking for granted that there'll always be more, and start finding new ways of operating. Ways which don't just take, but which respect the planet's natural boundaries. To do this, we need to take a stand. To put preservation at the heart of everything we do.**

At Corbion, we exist to champion preservation in all its forms, preserving food and food production, health, and our planet. This isn't about maintaining the status quo; it's about finding new ways of operating in a changing environment. It's about empowering one another, and the world, to do more with less.

In our Advance 2025 strategy, Corbion has chosen to focus on SDG 2 (Zero hunger), SDG 3 (Good health and well-being) and SDG 12 (Responsible consumption and production) as the goals on which we believe we can make the most significant positive impact, given our business activities.


**Preserving food and food production (SDG2 Zero hunger)** is about creating a sustainable food system capable of feeding a growing population, given the boundaries of our planet. Corbion's solutions for shelf life extension, food safety, animal health and aquaculture support this ambition. We also collaborate with our agriculture-derived raw material suppliers to promote sustainable agriculture and ensure deforestation-free sourcing.


**Preserving health (SDG3 Good health and well-being)** is about supporting healthy lives and promoting well-being at all ages. Corbion's solutions for health care, pharma, nutrition and hygiene contribute to some of the underlying targets defined for SDG3. We also care for the health and well-being of our own employees and supply chain partners.

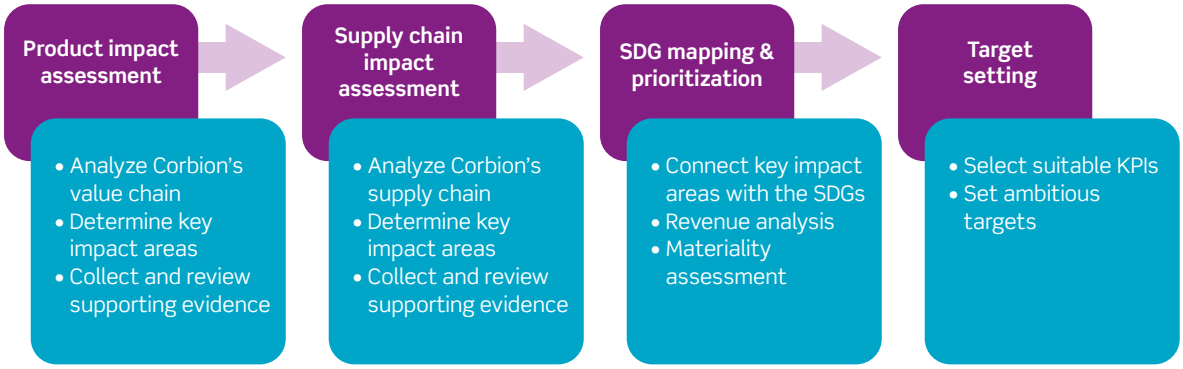

**Preserving our planet (SDG12 Responsible production and consumption)** is about moving toward a circular economy. Biobased chemicals and materials from Corbion play an essential role in promoting SDG12 and helping to create a circular economy. SDG12 also includes food waste reduction as a sub-target, and our work to create zero waste, improve energy efficiency, reduce greenhouse gas emissions, and implement our new circular production technology in our manufacturing plants also contributes to this goal.

## Preserving what matters

By 2030, we aim for **80%** of our products to contribute to preserving food and food production, health, and/or the planet.

## Measuring our impact

The 17 sustainable development goals clearly cannot be accomplished by any government or company on its own; their achievement is possible only if we all do our part. At Corbion, we believe companies should focus where they can make the greatest impact. To determine our own strategic focus, we performed an SDG impact assessment, consisting of four steps:




## Product impact assessment

In evaluating Corbion's potential for contributing to the SDGs based on an analysis of our entire product portfolio, we were inspired by the 'Business Reporting on the SDGs – An analysis of the goals and targets' publication developed by the Global Reporting Initiative and the UN Global Compact. This publication provides illustrative examples of actions businesses can take to impact the SDG targets.

Our assessment identified the following relevant impact areas and associated SDG targets:

| Impact category | Definition | Example |
|---|---|---|
| Animal health | Ensure sustainable food production by improving the health of production animals. | By promoting gut health, ALOAPUR® provides an effective solution for achieving superior animal performance, without the use of antibiotics. This contributes to sustainable food production systems (SDG 2.4) and to combating communicable diseases (SDG 3.3). |
| Reduced environmental impact | Enable our customers to reduce their environmental impact by reducing Greenhouse Gas emissions, waste or land use | The carbon footprint of LUMINY PLA is lower than fossil-based materials with similar performance such as polystyrene. This contributes to achieving the goals of the Paris Agreement and therefore to SDG 13.<br><br>Sanilac is used in home and personal care products as a registered preservative. This contributes to waste reduction by preventing spoilage (SDG 12.5).<br><br>Algae-based protein reduces land use compared to animal-based protein) which contributes to sustainable food production systems (SDG 2.4). |
| Food safety | Protect food against food-borne pathogens by providing antimicrobial solutions | Corbion's Opti.Form and Verdad products are used for Listeria control; this supports access to safe food (SDG 2.1) and helps prevent communicable diseases (SDG 3.3). |

| Impact category | Definition | Example |
|---|---|---|
| Food waste | Ensure sustainable food production by preventing food waste | Corbion's food ingredient solutions support the sustainable production of safe, healthy and affordable food and the prevention of food waste (SDG 12.3) along the value chain, which also increases the availability of and access to food (SDG 2.1). |
| Health & health care | Preserve health by providing health care solutions | Corbion's PURASAL S/PF solutions for pharma are used for dialysis and IV fluids, and therefore contribute to preventing mortality from non-communicable diseases (SDG 3.4). Corbion's products also allow for home treatment, which is more cost-efficient and increases accessibility to the treatment (SDG 3.8).<br><br>PURASORB polymers are resorbable excipients for controlled release drug delivery systems, which enable patients to control dosage over days, weeks, or months with a single injection. This improves the health and well-being of the patient by reducing side-effects (SDG 3.4).<br><br>Our polymers are used in the development of a 6-month, long-acting injectable and bioresorbable contraceptive supported by a grant from the Bill and Melinda Gates Foundation (SDG 3.7).<br><br>PURASORB resorbable polymers are used in resorbable orthopedic devices and implants, which, in turn, are used in treating a wide range of injuries to the musculoskeletal system in areas like sports medicine, trauma and spinal surgery. This contributes to the treatment of non-communicable diseases (SDG 3.4). The biodegradability of the orthopedic devices reduces the need for follow-up surgeries. Surgery always includes a health (infection) risk for the patient, so these products also contribute to SDG 3.3. Further, fewer follow-up surgeries reduces healthcare costs (SDG 3.8). |
| Health and nutrition | Preserve health by providing food ingredients with nutritional benefits | PURACAL and Gluconal are used for mineral fortification in food products, which contributes to achieving the recommended daily intake of minerals (calcium, magnesium, etc.) and helps to prevent certain non-communicable diseases (SDG 3.4).<br><br>PuraQArome and PURASAL HipureP enable the creation of low-sodium food products without compromising product quality. This has beneficial health effects for the consumer, as it reduces illness from certain non-communicable diseases and therefore contributes to SDG 3.4. |
| Marine biodiversity | Ensure sustainable food production by protecting marine ecosystems | AlgaPrime DHA is a micro-algae-based omega-3 that reduces reliance on forage fish for fish oil in aquaculture feed. This contributes to SDG 14.2 by protecting marine ecosystems, to SDG 14.4 by preventing overfishing, and to SDG 2.4 by supporting the transition to a sustainable food system. |
| Biobased economy | Enable the transition to a biobased economy using renewable biological resources sustainably to produce food and materials | Corbion's products can replace synthetic chemicals with fermentation-based products derived from agricultural raw materials. This contributes to the sustainable management of natural resources (SDG 12.2) due to the reduced use of fossil-based raw materials. |
| Less hazardous chemicals | Reduce the risks associated with producing and using chemicals | Corbion's PURASOLV solvents are not included in the SVHC (substances of very high concern) list from ECHA (European Chemicals Agency), nor are they in the SIN (Substitute it now) list from ChemSec (International Chemical Secretariat). PURASOLV can be used as non-toxic replacements for potentially unsafe solvents, such as NMP, DMAc, DMF, xylene, toluene, isophorone and chlorinated solvents (solvents that are restricted substances under REACH but can be used in agrochemical applications outside the EU). This contributes to SDG3.9 and SDG 12.4 |

For each of the identified impact areas, internal and external documentation has been collected and reviewed by relevant Corbion Competence Leads and other experts to confirm that there is sufficient evidence supporting the impact of a product or product group. The supporting documentation included academic publications, R&D studies by external laboratories, internal test results, customer feedback, examples of commercial application, certifications and patents.

Products for which we do not yet have sufficient evidence to claim a positive contribution to the impact category are not counted.

### Sector relevance

Corbion's products are used in a number of different industries, and their ability to contribute to the achievement of the Sustainable Development Goals depends on the sector in which they are applied.

For products we supply to the confectionery and sweet goods sub-markets, we do not claim positive impacts in the health benefits and food waste reduction categories.

According to the Report 'CREATING A SUSTAINABLE FOOD FUTURE - A Menu of Solutions to Feed Nearly 10 Billion People by 2050' from the World Resources Institute, animal-based food will be part of the 2050 diet. Which is why our products for preservation in the meat sector are considered to have a positive impact on the Sustainable Development Goals by preventing meat waste and providing food safety.

We do not claim positive impacts for our products used in the oil and gas sector, since they cannot solve or eliminate negative environmental impacts in this sector. The sector itself, which is based on finite resources is in conflict with some of the SDGs (for example SDG12 – Responsible consumption and production, and SDG 13 – Climate action).

## Supply chain impact assessment

Corbion recognizes that some of the SDGs can be negatively impacted by its operations. The table below summarizes the main impact categories and associated SDG targets. This assessment is based on the Chemical Sector SDG Roadmap from the WBCSD and the report 'Business Reporting on the SDGs: An analysis of the goals and targets' from UN Global Compact and GRI. The Chemical Sector SDG Roadmap prioritizes 10 SDGs with impact opportunities to which the Chemical Sector can contribute, including opportunities to increase positive impact and to reduce negative impacts. Opportunities related to potential negative impacts were assessed for their relevance to Corbion. This assessment was augmented by a high-level review of the SDG targets to identify any other potential negative impacts.

| Impact category | Definition | Example | SDG targets |
|---|---|---|---|
| Greenhouse gas emissions | The reduction of GHG emissions by Corbion and its partners in line with the Paris Agreement through increased energy efficiency, use of renewable energy and supplier engagement. | • Science Based Targets commitment<br>• RE100 commitment<br>• A rating CDP Climate change | 13 |
| Deforestation | Create a sustainable agricultural supply chain by eliminating deforestation | • Bonsucro certification<br>• Audits vs Corbion cane sugar code<br>• RSPO certification<br>• B rating CDP Forests/Palm | 15.2 |
| Environmental and social impacts of agriculture | Create a sustainable and traceable agricultural supply chain through continuous improvement to reduce negative impacts on the environment while providing positive benefits such as carbon sequestration | • Bonsucro and RSPO certification<br>• Audits vs Corbion cane sugar code<br>• Collaborations on Sustainable agriculture with various supply chain partners<br>• Sustainable Agriculture Policy | 2.4<br>15.1<br>15.5 |
| Occupational health and safety | Provide a safe and healthy working environment for all employees, contractors and visitors, and promote a safety culture in the supply chain | • OSHAS/ISO45001 certification<br>• EHS policy | 8.8 |
| Waste | Mitigating waste from production and eliminating landfill | • Zero waste to landfill commitment | 12.4<br>12.5 |
| Human and labor rights in supply chain | Respecting human rights in Corbion's own operations and within its supply chain | • Statement on human rights | 8.7<br>8.8 |
| Water management | Minimize water consumption through efficient processes and ensure water quality when discharging by waste water treatment. | • B- rating CDP Water | 6.3<br>6.4<br>6.5 |
| Use of agricultural land for non-food use | Minimize competition between the use of land to produce feedstocks for biochemicals and the use of land for food production | • Statement on biobased or renewable feedstock | 2.1 |

## Materiality assessment and SDG prioritization

To determine the material SDGs impacted by Corbion's products, sales data from all products were analyzed to determine the revenue contribution tied to impact areas and the percentage of Corbion's revenues that contribute positively to the SDGs. For the total Corbion portfolio, including all business units, 61% of 2020 revenues contribute to one or more of the impact categories and, consequently, to one or more of the SDGs. The table below provides revenue contribution per SDG (note that some products contribute to multiple SDGs, so total revenue contribution is not equal to the sum of the figures in this table).

Revenues contributing to an SDG divided by total Corbion revenues:

| | SDG2 | SDG3 | SDG12 | SDG13 | SDG14 |
|---|---|---|---|---|---|
| **2020 revenue contribution for total portfolio** | 30% | 34% | 50% | 7% | 1% |

The material SDGs impacted by Corbion's supply chain were identified based on our most recent Materiality assessment. The materiality determination process consisted of the following steps:

1. Theme identification: We compiled a long list of relevant sustainability themes based on international standards, media, peers, sector trends and risk analysis. This list was then consolidated to create a shorter list of 22 themes.
2. Stakeholder dialogues: The importance of each theme to our stakeholders was determined through a survey and interviews.
3. Determination of Corbion's impact: The degree to which Corbion impacts each theme was ranked by Corbion's senior management, Executive Committee and Supervisory Board through a survey.
4. Materiality matrix calculation: The resulting internal and external scores were plotted in a matrix and discussed with the Sustainability Sounding Board and the Executive Committee to determine the material themes.

| | Impact area | Materiality |
|---|---|---|
| **SDG2** | Environmental and social impacts of agriculture<br>Use of agricultural land for non-food use | High |
| **SDG6** | Water management | Medium-low |
| **SDG8** | Occupational health and safety<br>Human and labor rights in supply chain | High<br>Medium-low |
| **SDG12** | Waste | Medium-low |
| **SDG13** | Greenhouse gas emissions | High |
| **SDG15** | Deforestation<br>Environmental and social impacts of agriculture | High |

Based on these assessments, Corbion has chosen to focus on SDG 2, SDG 3 and SDG 12 as the goals on which it believes it can make the most significant positive impact, given our business activities. To make a credible and meaningful impact on the Sustainable Development Goals, Corbion aims to minimize any negative impacts while maximizing positive impact. For example, specific Corbion products (e.g., products that replace an alternative with a higher carbon footprint) have a net positive impact on SDG13, but this does not relieve Corbion of the responsibility to reduce its GHG emissions.

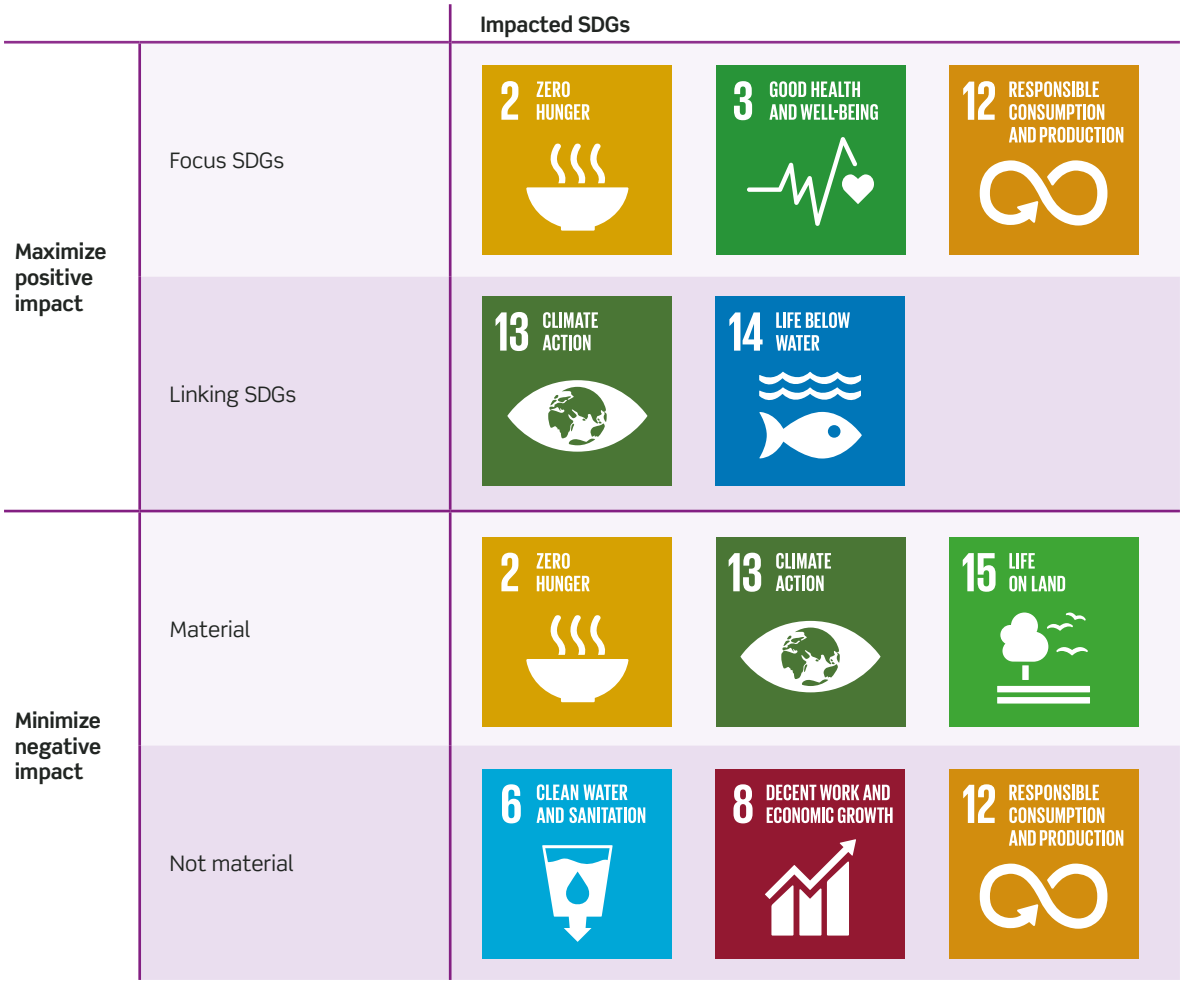



*Figure 1: The SDGs impacted by Corbion's products and supply chain.*

## Targets

For the material SDGs, specific targets have been defined in Corbion's Advance 2025 strategy. Progress towards the achievement of these targets is included in our annual report.

| | 2025[1] | 2030[1] |
|---|---|---|
| **Preserving food and food production** | | |
| % of cane sugar verified responsibly sourced[2] | 100% | 100% |
| % of verified deforestation-free key agricultural raw materials[3,4] | 100% | 100% |
| % of Product Social Metrics[5] coverage for products contributing to preserving food and food production[6] | 50% | 100% |
| **Preserving health** | | |
| Total Recordable Injury Rate[7] | < 0.5 | < 0.25 |
| % of Product Social Metrics[5] coverage for products contributing to preserving health[6] | 50% | 100% |
| **Preserving the planet** | | |
| Renewable electricity | 90% | 100% |
| Reduction of Scope I, II, III emissions (SBTi-approved target)[8] | 20% | 33% |
| % recycled by-products[9] | 100% | 100% |
| Landfill of waste | 0 kT | 0 kT |
| % of Life Cycle Assessment[10] coverage for products contributing to preserving the planet[6] | 100% | 100% |
| **Preserving what matters** | | |
| % of products[11] contributing to preserving food and food production, health, and/or the planet[6] | > 70% | > 80% |

[1] *Targets based on current manufacturing footprint; to be reviewed in case of acquisitions / major changes.*

[2] *Bonsucro-certified or meeting the requirements of Corbion's cane sugar code verified by third-party audits, by quantity.*

[3] *Key agricultural raw materials include cane sugar, dextrose derived from corn, palm oil and derivatives, soy-bean oil and derivatives, and wheat, by quantity.*

[4] *Through Bonsucro certification, RSPO certification or other certification covering deforestation; or demonstrated to be deforestation-free based on satellite data, third party audits (e.g. Corbion cane sugar code audit), and/or country of origin statements, by quantity.*

[5] *The Product Social Metrics assessment is done according to the methodology described in the Handbook for Product Social Impact Assessment, published by the Roundtable for Product Social Metrics and applies to products manufactured at Corbion sites (outsourcing is excluded). By quantity.*

[6] *Products for which there is evidence that the product contributes to the identified impact categories.*

[7] *Based on OSHA guidelines. Including contractors.*

[8] *Per metric ton of product. Our Science Based Target includes Scope I emissions from direct production (from natural gas), Scope II emissions from purchased energy (electricity and purchased steam, market-based), and Scope III emissions related to key raw materials and transport. Our 2030 target is approved by the Science Based Targets initiative. Progress is reported compared to 2016 as base year.*

[9] *By quantity.*

[10] *Life Cycle Assessment (LCA) is peer reviewed according to the ISO 14040/44 standards for Corbion's core products (such as lactic acid) or done according to the "LCA Approach for Corbion's Product Portfolio: Lactic acid derivative plants, Corbion 2017," which has been externally reviewed against and is considered to be in line with the principles of the ISO 14040/44 standards. Applies to products manufactured at Corbion sites (outsourcing is excluded). By quantity.*

[11] *By revenue.*

## Appendix: SDG targets impacted by Corbion's products

### SDG2 targets impacted by Corbion's products

Target 2.1

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

Target 2.4

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

### SDG3 targets impacted by Corbion's products

Target 3.3

By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

Target 3.4

By 2030, reduce by one third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being.

Target 3.5

Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.

Target 3.7

By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs.

Target 3.8

Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

Target 3.9

By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

## SDG12 targets impacted by Corbion's products

### Target 12.2

By 2030, achieve the sustainable management and efficient use of natural resources.

### Target 12.3

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

### Target 12.4

By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their lifecycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

### Target 12.5

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

## SDG 13 targets impacted by Corbion's products

The underlying targets defined for SDG13 focus on climate change adaptation and measures at country level and cannot be linked to business activities.

## SDG14 targets impacted by Corbion's products

### Target 14.2

By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

### Target 14.4

By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.

## Appendix: SDG targets impacted by Corbion's supply chain

### SDG2 targets impacted by Corbion's supply chain

Target 2.1

By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

Target 2.4

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

### SDG6 targets impacted by Corbion's supply chain

Target 6.3

By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

Target 6.4

By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

Target 6.5

By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

### SDG8 targets impacted by Corbion's supply chain

Target 8.7

Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.

Target 8.8

Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.

## SDG12 targets impacted by Corbion's supply chain

### Target 12.4

By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their lifecycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

### Target 12.5

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

## SDG 13 targets impacted by Corbion's supply chain

The underlying targets defined for SDG13 focus on climate change adaptation and measures at country level and cannot be linked to business activities.

## SDG15 targets impacted by Corbion's supply chain

### Target 15.1

By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

### Target 15.2

By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

### Target 15.5

Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.